INDEX TO VOLUME 57

July to December 1956—Research Papers 2687 to 2726

A

Page

Acetylene, infrared spectrum of, RP2711 ... 213
Alkali silicate glasses, thermal expansion of, RP2698 ... 97
Alkyls, lead, mass spectra of, RP2692 ... 41
Allen, H. C., Jr., E. D. Tidwell, E. K. Plyler, Infrared spectrum of acetylene, RP2711 ... 213
Alternating-current bridge, investigation of, for the measurement of core losses in ferromagnetic materials at high flux densities, RP2699 ... 103
Aluminum oxide from 0° to 1,200° K, thermal properties of, RP2694 ... 67
Ambler, E., R. P. Hudson, An examination of the 1955 helium vapor-pressure scales of temperature, RP2689 ... 23
D-Arabinose-5-C^{14} from D-glucose-6-C^{14}, preparation of, RP2697 ... 95
Axial performance of spectacle lenses, RP2724 ... 355

B

Ball bearings, deep-groove, statistical investigation of the fatigue life of, RP2719 ... 273
Barium titanium silicate glasses, properties of, RP2720 ... 317
Bates, R. G., V. E. Bower, Dissociation constant of piperidinium ion from 0° to 50° C and related thermodynamic quantities, RP2705 ... 153
Bearings, oil-free, small, RP2709 ... 185
Bouche, R. R., S. Levy, Calibration of vibration pickups by the reciprocity method, RP2714 ... 227
Bower, V. E., R. G. Bates, Dissociation constant of piperidinium ion from 0° to 50° C and related thermodynamic quantities, RP2705 ... 153
Bradt, P., F. L. Mohler, V. H. Dibeler, Mass spectrum of sulfur vapor, RP2713 ... 223
Brown, D. W., L. A. Wall, Chemical activity of gamma-irradiated polymethyl methacrylate, RP2702 ... 131
Burning of combustible materials, controlled, and analysis of the combustion gases, RP2715 ... 245

C

Calcium aluminate hydrates formed in the hydration of aluminous cement, RP2723 ... 335
Calibration of vibration pickups by the reciprocity method, RP2714 ... 227
Camera tipping, effect on location of principal point, RP2691 ... 31
Cane sugar industry, color evaluation in, RP2706 ... 159
Carbohydrates, structurally related, system for classification of, RP2707 ... 171
Carbon-14-labeled carbohydrates:
D-Arabinose-5-C^{14}, RP2697 ... 95
β-Gentiobiose-1-C^{14}, RP2722 ... 333
Carlson, E. T., L. S. Wells, Hydration of aluminous cements and its relation to the phase equilibria in the system lime-alumina-water, RP2723 ... 335
Cements, aluminous, hydration of, RP2723 ... 335
Chemical activity of gamma-irradiated polymethyl methacrylate, RP2702 ... 131
Classification system of structurally related carbohydrates, RP2707 ... 171
Cleek, G. W., E. H. Hamilton, Properties of barium titanium silicate glasses, RP2720 ... 317
Coincidence counting, high-resolution, techniques in, RP2701 ... 119
Coincidence and dead-time corrections, efficiency of 4π-crystal-scintillation counting, RP2717 ... 257
Cold-cathode oscillograph, tests on an improved deflecting system of, RP2704 ... 143
Color evaluation in the cane sugar industry, RP2706 ... 159
Combustible materials, method for the controlled burning of, and analyses of the combustion gases, RP2715 ... 245
Cones, H. N., A high-voltage pulse generator and tests on an improved deflecting system of a cold-cathode oscillograph, RP2704 ... 143
Controlled burning of combustible materials, method for, and analyses of the combustion gases, RP2715 ... 245
Cooter, I. L., W. P. Harris, Investigation of an alternating-current bridge for the measurement of core losses in ferromagnetic materials at high flux densities, RP2699 ... 103
Core losses, investigation of an alternating-current bridge for the measurement of, in ferromagnetic materials at high flux densities, RP2699 ... 103
Cryogenic equipment, RP2726 ... 371
Crystal, 4π, scintillation counting:
1. Experimental technique and results, RP2716 ... 251
2. Dead-time and coincidence corrections, RP2717 ... 257
Crystallization and slow melting, purification of substances by, RP2703 ... 137

D

Damping, coulomb, RP2693 ... 45
Dead-time and coincidence corrections, efficiency of 4π-crystal-scintillation counting, RP2717 ... 257
Deflecting system, tests on, of a cold-cathode oscillograph, RP2704 ... 143
Deitz, V. R., Color evaluation in the cane sugar industry, RP2706 ... 159
Dibeler, V. H., P. Bradt, F. L. Mohler, Mass spectrum of sulfur vapor, RP2713 ... 223
—, *R. M. Reese, F. L. Mohler*, Ionization and dissociation of the trifluoromethyl halides by electron impact, RP2700 ... 113
—, *E. I. Quinn, F. L. Mohler*, Mass spectra of some lead alkyls, RP2692 ... 41
Differential thermal analysis, variation of peak temperature with heating rate in, RP2712 ... 217
Dissociation constant of piperidinium ion, RP2705 ... 153
Douglas, T. B., G. T. Furukawa, R. E. McCoskey, D. C. Ginnings, Thermal properties of aluminum oxide from 0° to 1,200° K, RP2694 ... 67
Dressler, R. F., Entropy changes in rarefaction waves, RP2718 ... 265

E

Page

Effect of camera tipping on the location of the principal point, RP2691 ... 31
Effect of object frequency on focal position of four photographic objectives, RP2688 ... 17
Efficiency of 4π-crystal-scintillation counting:
1. Experimental technique and results, RP2716 ... 251
2. Dead-time and coincidence corrections, RP2717 ... 257
Engine, two-stroke-cycle, scavenging characteristics, RP2721 ... 325
Entropy changes in rarefaction waves, RP2718 ... 265
Expansion, thermal, of binary alkali silicate glasses, RP2698 ... 97
Expansion, thermal, Teflon, RP2696 ... 91

F

Fatigue life of deep-groove ball bearings, statistical investigation of, RP2719 ... 273
Ferromagnetic materials, investigation of an alternating-current bridge for the measurement of core losses in, at high flux densities, RP2699 ... 103
Fibers, properties and behavior of, when impacted at high velocities, RP2695 ... 83
Focal position of four photographic objectives, effect of object frequency on, RP2688 ... 17
Foshagite, xonotlite, and hillebrandite, heats of formation of, RP2690 ... 27
Freezing and fractional melting under equilibrium conditions, purification of substances by a process of, RP2703 ... 137
Frequency response of second-order systems with combined coulomb and viscous damping, RP2693 ... 45
Friction, coulomb, RP2693 ... 45
Frush, H. L., H. S. Isbell, N. B. Holt, Preparation of D-arabinose-5-C^{14} from D-glucose-6-C^{14}, RP2697 ... 95
—, —, *J. E. Stewart, J. D. Moyer, F. A. Smith*, Infrared spectra of D-talose monobenzoate and related substances, RP2708 ... 179
Furukawa, G. T., T. B. Douglas, R. E. McCoskey, D. C. Ginnings, Thermal properties of aluminum oxide from 0° to 1,200° K, RP2694 ... 67

G

Gamma-irradiated polymethyl methacrylate, chemical activity of, RP2702 ... 131
Gases, combustion, analyses of, and method for the controlled burning of combustible materials, RP2715 ... 245
β-Gentiobiose-1-C^{14}, synthesis of, RP2722 ... 333
Ginnings, D. C., G. T. Furukawa, T. B. Douglas, R. E. McCoskey, Thermal properties of aluminum oxide from 0° to 1,200° K, RP2694 ... 67
Glasgow, A. R., Jr., G. S. Ross, Purification of substances by a process of freezing and fractional melting under equilibrium conditions, RP2703 ... 137
Glasses, barium titanium silicate, properties of, RP2720 ... 317
Glasses, binary alkali silicate, thermal expansion of, RP2698 ... 97
D-Glucose-6-C^{14}, preparation of D-arabinose-5-C^{14} from, RP2697 ... 95
Ground wave propagation, RP2687 ... 1

H

Hamilton, E. H., G. W. Cleek, Properties of barium titanium silicate glasses, RP2720 ... 317
Harris, W. P., I. L. Cooter, Investigation of an alternating-current bridge for the measurement of core losses in ferromagnetic materials at high flux densities, RP2699 ... 103
Heat conduction of contacts, RP2726 ... 371
Heat conduction through insulating supports, RP2726 ... 371
Heating rate, variating of peak temperature with, in differential thermal analysis, RP2712 ... 217
Heats of formation of xonotlite, hillebrandite, and foshagite, RP2690 ... 27
Helium vapor-pressure scales of temperature, an examination of, RP2689 ... 23
High flux density core-loss measurements, RP2699 ... 103
High-resolution coincidence counting, techniques in, RP2701 ... 119
High-voltage pulse generator and tests on an improved deflecting system of a cold-cathode oscillograph, RP2704 ... 143
Hillebrandite, xonotlite, and foshagite, heats of formation of, RP2690 ... 27
Holt, N. B., H. S. Isbell, H. L. Frush, Preparation of D-arabinose-5-C^{14} from D-glucose-6-C^{14}, RP2697 ... 95
Hudson, R. P., E. Ambler, An examination of the 1955 helium vapor-pressure scales of temperature, RP2689 ... 23
Hydration of aluminous cements and its relation to the phase equilibria in the system lime-alumina-water, RP2723 ... 335

I

Impact tests of textile yarns, RP2695 ... 83
Infrared spectra of D-talose monobenzoate and related substances, RP2708 ... 179
Infrared spectrum of acetylene, RP2711 ... 213
Infrared transmittance of barium titanium silicate glasses, RP2720 ... 317
Insulating supports, heat conduction through, RP2726 ... 371
Investigation of an alternating-current bridge for the measurement of core losses in ferromagnetic materials at high flux densities, RP2699 ... 103
Ionization and dissociation of the trifluoromethyl halides by electron impact, RP2700 ... 113
Ionization constant of piperidinium ion, RP2705 ... 153
Ionization potential of the trifluoromethyl radical, RP2700 ... 113
Ions, negative, in mass spectra of polyatomic molecules, RP2725 ... 367
Isbell, H. S., M. B. Holt, H. L. Frush, Preparation of D-arabinose-5-C^{14} from D-glucose-6-C^{14}, RP2697 ... 95
—, *R. Schaeffer*, Synthesis of β-gentiobiose-1-C^{14}, RP2722 ... 333
—, *J. E. Stewart, H. L. Frush, J. D. Moyer, F. A. Smith*, Infrared spectra of D-talose monobenzoate and related substances, RP2708 ... 179
—, System for classification of structurally related carbohydrates, RP2707 ... 171

J

Page

Johnston, R. G., R. Stair, Preliminary spectroradiometric measurements of the solar constant, RP2710 205

K

Kirby, R. K., Thermal expansion of polytetrafluoroethylene (Teflon) from −190° to +300° C, RP2696 91
Kissinger, H. E., Variation of peak temperature with heating rate in differential thermal analysis, RP2712 217
Ku, P. M., T. F. Trimble, Scavenging characteristics of a two-stroke-cycle engine as determined by skip-cycle operation, RP2721 325

L

Lead alkyls, mass spectra, RP2692 41
Lenses, spectacle, axial performance of, RP2724 355
Levy, S., R. R. Bouche, Calibration of vibration pickups by the reciprocity method, RP2714 227
Lieblein, J., M. Zelen, Statistical investigation of the fatigue life of deep-groove ball bearings, RP2719 273
Lime-alumina-water system, hydration of aluminous cements and its relation to the phase equilibria in the, RP2723 335
Low-temperature heat conduction of contacts, RP2726 371

M

Mann, W. B., H. H. Seliger, Efficiency of 4π-crystal-scintillation counting: 2. Dead-time and coincidence corrections, RP2717 257
Mass spectra of some lead alkyls, RP2692 41
Mass spectra of polyatomic molecules, survey of negative ions in, RP2725 367
Mass spectrum of sulfur vapor, RP2713 223
Method for the controlled burning of combustible materials and analyses of the combustion gases, RP2715 245
Mikesell, R. P., R. B. Scott, Heat conduction through insulating supports in very low temperature equipment, RP2726 371
Minton, G. H., Techniques in high-resolution coincidence counting, RP2701 119
Mixed path ground wave propagation: 1. Short distances, RP2687 1
McCoskey, R. E., G. T. Furukawa, T. B. Douglas, D. C. Ginnings, Thermal properties of aluminum oxide from 0° to 1,200° K, RP2694 67
McCrackin, F. L., J. C. Smith, H. F. Schiefer, W. K. Stone, K. M. Towne, Stress-strain relationships in yarns subjected to rapid impact loading: 4. Transverse impact tests, RP2695 83
Mohler, F. L., P. Bradt, V. H. Dibeler, Mass spectrum of sulfur vapor, RP2713 223
—, *V. H. Dibeler, R. M. Reese,* Ionization and dissociation of the trifluoromethyl halides by electron impact, RP2700 113
—, *E. I. Quinn, V. H. Dibeler,* Mass spectra of some lead alkyls, RP2692 41
—, *R. M. Reese, V. H. Dibeler,* A survey of negative ions in mass spectra of polyatomic molecules, RP2725 367
Molecules, polyatomic, negative ions in mass spectra of, RP2725 367
Moyer, J. D., H. S. Isbell, J. E. Stewart, H. L. Frush, F. A. Smith, Infrared spectra of D-talose monobenzoate and related substances, RP2708 179

N

Newman, E. S., Heats of formation of zonotlite, hillebrandite, and foshagite, RP2690 27

O

Object frequency, effect of, on focal position of four photographic objectives, RP2688 17
Oil-free bearings, small, RP2709 185
Oscillograph, cold-cathode, tests on an improved deflecting system of, RP2704 143

P

Peak temperature, variation of, with heating rate in differential thermal analysis, RP2712 217
Perls, T. A., E. S. Sherrard, Frequency response of second-order systems with combined coulomb and viscous damping, RP2693 45
Photographic objectives, effect of object frequency on focal position of, RP2688 17
Piperidinium ion, dissociation constant of, RP2705 153
Plyler, E. K., H. C. Allen, Jr., E. D. Tidwell, Infrared spectrum of acetylene, RP2711 213
Polyatomic molecules, negative ions in mass spectra of, RP2725 367
Polymethyl methacrylate, gamma-irradiated, chemical activity of, RP2702 131
Polytetrafluoroethylene, thermal expansion, RP2696 91
Principal point, effect of camera tipping on location, RP2691 31
Propagation of radio ground waves, RP2687 1
Properties of barium titanium silicate glasses, RP2720 317
Pulse generator, high-voltage, and tests on an improved deflecting system of a cold-cathode oscillograph, RP2704 143
Purification of substances by a process of freezing and fractional melting under equilibrium conditions, RP2703 137

Q

Quinn, E. I., V. H. Dibeler, F. L. Mohler, Mass spectra of some lead alkyls, RP2692 41

R

Page

Radio ground wave propagation, RP2687 1
Rarefaction waves, entropy changes in, RP2718 265
Reciprocity method, calibration of vibration pickups by, RP2714 227
Reese, R. M., V. H. Dibeler, F. L. Mohler, A survey of negative ions in mass spectra of polyatomic molecules, RP2725 367
—, —, —, Ionization and dissociation of the trifluoromethyl halides by electron impact, RP2700 113
Rosberry, F. W., Effect of object frequency on focal position of four photographic objectives, RP2688 17
Ross, G. S., A. R. Glasgow, Jr., Purification of substances by a process of freezing and fractional melting under equilibrium conditions, RP2703 137

S

Scavenging characteristics of a two-stroke-cycle engine as determined by skip-cycle operation, RP2721 325
Schaffer, R., H. S. Isbell, Synthesis of β-gentiobiose-1-C^{14}, RP2722 333
Schiefer, H. F., J. C. Smith, F. L. McCrackin, W. K. Stone, K. M. Towne, Stress-strain relationships in yarns subjected to rapid impact loading: 4. Transverse impact tests, RP2695 83
Schriesheim, A., Method for the controlled burning of combustible materials and analyses of the combustion gases, RP2715 245
Scintillation, 4π-crystal, counting:
1. Experimental technique and results, RP2716 251
2. Dead-time and coincidence corrections, RP2717 257
Scott, R. B., R. P. Mikesell, Heat conduction through insulating supports in very low temperature equipment, RP2726 371
Second-order systems with combined coulomb and viscous damping, frequency response of, RP2693 45
Seliger, H. H., W. B. Mann, Efficiency of 4π-crystal-scintillation counting: 2. Dead-time and coincidence corrections, RP2717 257
—, *C. C. Smith, J. Steyn,* Efficiency of 4π-crystal-scintillation counting: 1. Experimental technique and results, RP2716 251
Shermer, H. F., Thermal expansion of binary alkali silicate glasses, RP2698 97
Sherrard, E. S., T. A. Perls, Frequency response of second-order systems with combined coulomb and viscous damping, RP2693 45
Silicate glasses, binary alkali, thermal expansion of, RP2698 97
Smith, C. C., H. H. Seliger, J. Steyn, Efficiency of 4π-crystal-scintillation counting: 1. Experimental technique and results, RP2716 251
Smith, F. A., H. S. Isbell, J. E. Stewart, H. L. Frush, J. D. Moyer, Infrared spectra of D-talose monobenzoate and related substances, RP2708 179
Smith, J. C., F. L. McCrackin, H. F. Schiefer, W. K. Stone, K. M. Towne, Stress-strain relationships in yarns subjected to rapid impact loading: 4. Transverse impact tests, RP2695 83
Solar constant, spectroradiometric measurements of, RP2710 205
Spectacle lenses, axial performance of, RP2724 355
Spectra, infrared, of D-talose monobenzoate and related substances, RP2708 179
Spectra, mass, of polyatomic molecules, survey of negative ions in, RP2725 367
Spectra, mass, of some lead alkyls, RP2692 41
Spectroradiometric measurements of the solar constant, RP2710 205
Spectrum, infrared, of acetylene, RP2711 213
Spectrum, mass, of sulfur vapor, RP2713 223
Stair, R., R. G. Johnston, Preliminary spectroradiometric measurements of the solar constant, RP2710 205
Statistical investigation of the fatigue life of deep-groove ball bearings, RP2719 273
Stewart, J. E., H. S. Isbell, H. L. Frush, J. D. Moyer, F. A. Smith, Infrared spectra of D-talose monobenzoate and related substances, RP2708 179
Stone, W. K., J. C. Smith, F. L. McCrackin, H. F. Schiefer, K. M. Towne, Stress-strain relationships in yarns subjected to rapid impact loading: 4. Transverse impact tests, RP2695 83
Sugar, cane, industry, color evaluation in, RP2706 159
Sulfur vapor, mass spectrum of, RP2713 223
Survey of negative ions in mass spectra of polyatomic molecules, RP2725 367
Synthesis of β-gentiobiose-1-C,^{14} RP2722 333
System for classification of structurally related carbohydrates, RP2707 171

T

D-Talose acetyl derivatives, infrared spectra of, RP2708 179
D-Talose monobenzoate, structure of, RP2708 179
Techniques in high-resolution coincidence counting, RP2701 119
Teflon, thermal expansion, RP2696 91
Temperature, helium vapor-pressure scales of, RP2689 23
Tests on an improved deflecting system of a cold-cathode oscillograph, RP2704 143
Textile yarns, rapid impact testing of, RP2695 83
Thermal analysis, differential, variation of peak temperature with heating rate in, RP2712 217
Thermal expansion of binary alkali silicate glasses, RP2698 97
Thermal expansion of Teflon, RP2696 91
Thermal properties of aluminum oxide from 0° to 1,200° K, RP2694 67
Tidwell, E. D., H. C. Allen, Jr., E. K. Plyler, Infrared spectrum of acetylene, RP2711 213
Towne, K. M., J. C. Smith, F. L. McCrackin, H. F. Schiefer, W. K. Stone, Stress-strain relationships in yarns subjected to rapid impact loading: 4. Transverse impact tests, RP2695 83
Trifluoromethyl halides, ionization and dissociation of, by electron impact, RP2700 113
Trimble, T. F., P. M. Ku, Scavenging characteristics of a two-stroke-cycle engine as determined by skip-cycle operation, RP2721 325
Two-stroke-cycle engine, scavenging characteristics of, RP2721 325

V

Variation of peak temperature with heating rate in differential thermal analysis, RP2712 217
Vibration instruments, response, RP2693 45
Vibration pickups, calibration of, by the reciprocity method, RP2714 227

W

Page

Wall, L. A., D. W. Brown, Chemical activity of gamma-irradiated polymethyl methacrylate, RP2702 131

Wait, J. E., Mixed path ground wave propagation: 1. Short distances, RP2687 1

Washer, F. E., Axial performance of spectacle lenses, RP2724 355

—, Effect of camera tipping on the location of the principal point, RP2691 31

Wells, L. S., E. T. Carlson, Hydration of aluminous cements and its relation to the phase equilibria in the system lime-alumina-water, RP2723 335

White, H. S., Small oil-free bearings, RP2709 185

X

Page

Xonotlite, hillebrandite, and foshagite, heats of formation of, RP2690 27

Y

Yarns, stress-strain relationships in, RP2695 83

Z

Zelen, M., J. Lieblein, Statistical investigation of the fatigue life of deep-groove ball bear ings, RP2719 27

U. S. GOVERNMENT PRINTING OFFICE: 1957